

Agilent Ref: 10010792-1
United States Application Serial No. 10/023,375

RESPONSE

In view of the following remarks, the Examiner is respectfully requested to withdraw the rejections and allow Claims 1-17 and 29, as well as new Claims 30-35, the only claims pending and currently under examination in this application.

Formal Matters

Claims 1-17, 29, and 30-35 are pending after entry of the amendments set forth herein

Claims 18-28 have been canceled.

Claims 1-17 and 29 were examined. Claims 1-17 and 29 were rejected. No claims were allowed.

Claim 1 has been amended to correct a typographical error.

New Claims 30-35 have been added. Support for the claims can be found in the claims as originally filed and throughout the specification at, for example: Claim 30: original Claims 1, 6 and 7; Claim 31: original Claim 2; Claim 32: original Claim 3; Claim 33: original Claim 4; Claim 34: original claim 8; and Claim 35: original Claim 9.

As the above amendments introduce no new matter to the application, their entry is respectfully requested.

Claim Objection

Claim 1 has been objected to because of a typographical error. Claim 1 has been amended to replace "a" with -at-. Therefore, this objection may be withdrawn.

Rejection under 35 U.S.C. §102(e)

Claims 1-4, 6-13, 15-17, and 29 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Kennedy (U.S. Patent No. 6,074,725). In view of the remarks made herein this rejection is respectfully traversed as applied and as it may be applied to the pending claims.

The present invention is directed to a pulse jet printhead including (1) a multiple die printhead that includes an orifice plate having a plurality of orifices and a plurality of thermal printhead dies in operational alignment with the orifices to

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produce at least one firing chamber, and (2) a volume of an aqueous fluid that includes a biopolymer or a precursor thereof in the firing chamber. The specification, for example, provides the following further description:

As indicated above, the pulse jet heads of the subject invention are characterized by having multiple printhead dies present on, e.g., bonded to, an orifice plate having multiple orifices to produce a structure having at least one functional firing chamber and typically a plurality of different firing chambers. By multiple printhead dies is meant that each printhead includes from 2 to about 10 or more printhead dies, where typically the number of printhead dies on a printhead of the subject invention ranges from 2 to about 7 and more usually from 2 to about 5, where in certain embodiments, the number of different printhead dies on a given printhead of the subject invention is 2, 3 or 4. By multiple orifices is meant at least about 2 orifices, usually at least about 5 orifices and more usually at least about 10 orifices, where the number of orifices of the printhead may range from about 12 to about 1000, usually from about 60 to about 600. The ratio of orifices to printhead varies, but in many embodiments ranges from about 24 to about 10000, usually from about 120 to about 2500. The orifices of the printhead may be arranged on the exposed surface of the orifice plate, described in greater detail below, in any convenient pattern so long as **the orifices line up with the printhead dies to produce functional firing chambers**, where in many embodiments the orifices are arranged in parallel columns, where the orifice to orifice distance between any two adjacent orifices in a given column ranges from about 50 microns to about 500 microns, usually from about 60 microns to about 200 microns and the distance between any two adjacent separate columns of orifices ranges from about 2 mm to about 10 mm, usually from about 3 mm to about 6 mm.

(specification, page 8, lines 1-24, emphasis added).

In rejecting the claims, the Office Action cites Kennedy and asserts that the reference teaches a plurality of thermal printhead dies present on a surface of an orifice plate in operational alignment with the plurality of orifices (Office Action, page 3). However, the Applicants respectfully disagree. None of the cited passages of Kennedy, or anywhere else in the cited reference discloses a multiple die printhead having a **plurality** of thermal printhead dies. In particular, the Office Action cites the following passages as teaching the element of a plurality of thermal printhead dies:

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generating resistor near the nozzle. Printing signals representing digital information originate an electric current pulse in a resistive layer within each ink passageway near the orifice or nozzle causing the ink in the immediate vicinity to quickly evaporate creating a bubble in the ink. The ink at the orifice is forced out as a propelled droplet as the bubble expands. When the hydrodynamic motion of the ink stops,

(column 6, line 60);

bility. In both impulse and continuous stream systems, a print head can incorporate from one to hundreds of ink orifices, with more orifices generally resulting in higher resolution and faster printing speeds.

(column 7, lines 3-5); and

Printheads are common to many thermal printing technologies. The heads are typically page-wide printed circuit-like arrays of uniform resistors. Alternatively, lasers replace printheads for precise thermal printing applications. In "direct" thermal printing, wax overlays are melted to reveal a substrate (e.g., a sheet of the laminate) below the wax. This

(column 11, lines 26-28).

As noted above, none of the cited passages teach a **plurality of printhead dies** in operational alignment with the orifices. In contrast, the cited passages refer to a printhead cartridge comprising a single ink-filled channel aligned with an orifice, and optionally, many orifices. Nowhere does the cited reference disclose a **plurality of printhead dies** in operational alignment with a plurality of orifices.

It is well established that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987), cert. denied, 481 U.S. 1052 (1987). See also, Scripps Clinic and Research Foundation v. Genentech, Inc., 18 USPQ 2d 1001 (Fed. Cir. 1991).

Since Kennedy does not teach a **plurality of thermal printhead dies** in operational alignment with the orifices, the cited reference fails to disclose every element found in the claims of the present invention. As such, Claims 1-4, 6-13, 15-

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17, and 29 are not anticipated under 35 U.S.C. § 102 by the cited reference.
Therefore, the Applicants respectfully request that this rejection be withdrawn.

Rejection under 35 U.S.C. §103

Claims 5 and 14 have been rejected under 35 U.S.C. § 103 as allegedly being rendered obvious by Kennedy in view of Gordon et al. (U.S. Patent No. 5,855,835). In view of the remarks made herein this rejection is respectfully traversed as applied and as it may be applied to the pending claims.

In order for a cited reference render the claims of the present application obvious, each and every limitation found in the claims must be disclosed in the cited reference. As noted above, Kennedy fails to teach each and every limitation found in the claims of the present application. In particular, Kennedy fails to teach a **plurality of printhead dies** in operational alignment with a plurality of orifices. Moreover, since Gordon was cited solely for teaching formation of a resistor on a substrate that is made of a semiconductor, the cited reference fails to make up the deficiency of Kennedy. Therefore, the references alone or in combination do not teach each and every element found in the claims.

As such, since the combination of the cited references fails to teach each every limitation found in the claims of the present application, the cited references fails to render the claims of the present application obvious. Therefore, the Applicants respectfully request that this rejection be withdrawn.

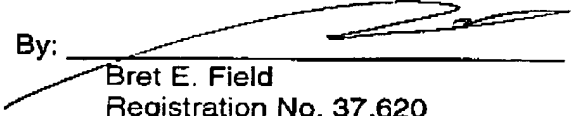
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Conclusion

The Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078.

Respectfully submitted,

Date: 4.15.05

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